

ORIGINAL ARTICLE

A predictive model on the hospital nurses' psychological well-being

Jung Min Kim¹  | Jeong-Won Han² 

¹Department of Nursing Science, Jinju Health College, Gyongsangnam-do, South Korea

²College of Nursing Science, Kyung Hee University, Dongdaemun-gu, South Korea

Correspondence

Jeong-Won Han, College of Nursing Science, Kyung Hee University, 26, Kyunghee-daero, Dongdaemun-gu, Seoul, 02453, South Korea.
Email: hjw0721@naver.com

Abstract

Purpose: The purpose of this study is to test a structural model that analyzes and comprehensively identifies the factors that affect the psychological well-being of hospital nurses, and to reveal the direct and indirect relationships among the factors.

Method: The subjects of this study were 217 nurses working in four advanced general hospitals in Metropolitan City B and Province G with at least one experience of job rotation. Data were analyzed using SPSS 21.0. The characteristics of subjects and the reliability of the research tools were analyzed through descriptive statistics, a *t*-test, an analysis of variance, and correlation analyses on the research variables. A confirmatory factor analysis was performed using AMOS 21.0 to verify the fitness of the hypothetical model and hypothesis.

Results: The test of fitness of the hypothetical model yielded $\chi^2 = 152.14$, $df = 72$, $\chi^2/df = 2.11$, goodness of fit index = .97, adjusted goodness of fit index = .91, normed fit index = .95, comparative fit index = .98, root mean square = .02, and root mean square error of approximation = .01, which showed that the model had a good fit and explained 63.0% of the variance in psychological well-being. The hypothesis of the study was verified: Nurses' job rotation stress has indirect effect on psychological well-being through self-efficacy, social support, optimism, and coping strategies.

Conclusion: A practical method that can promote self-efficacy, social support, optimism, and stress-coping strategies must be established to improve the psychological well-being of hospital nurses based on this research.

KEYWORDS

adaptation, coping strategy, job stress, nurses

1 | INTRODUCTION

1.1 | Necessity of the study

Nurses are medical professionals who are in contact with patients and their guardians 24 h a day, and they account for 30–50% of a hospital's medical staff. Hence, they play a determining and pivotal role in the level of service quality in a hospital (Chang, Cho, Kim, Lee, & Seomun, 2006). In recent years, many hospital organizations have taken an interest in

improving the quality of hospital services through their nurses, who make up the majority of a hospital's medical staff (Back, Kim, & Kim, 2016), and are actively using administrative strategies to reduce nurses' psychological discomfort and improve their psychological well-being (Kang & Bae, 2015). Nurses with high psychological well-being provide higher-quality nursing services by interacting positively with colleagues and patients. Additionally, high psychological well-being brings about positive effects, such as

improving job satisfaction and reducing the turnover rate; thus, the psychological well-being of the nurses becomes an important survival strategy which can enhance the level of service in hospitals (Jun, Lee, & Lee, 2015).

The psychological well-being of nurses, which is directly correlated with a hospital's survival strategy, can be explained as a process of successful adaptation obtained by appropriately evaluating one's perceived stress and effectively coping with that stress in terms of Lazarus and Folkman's stress-coping and adjustment theory (Lazarus & Folkman, 1984). As awareness of the importance of the psychological well-being of nurses has spread, many studies have been conducted on a variety of relevant factors, and these studies have placed particular emphasis on the effect of job rotation stress on nurses' psychological well-being (Huang, Lin, Kao, Yang, Anne, & Wang, 2016; Lee & Yoo, 2017). Job rotation stress refers to the stress that occurs in situations related to department transfers (Ho, Chang, Shih, & Liang, 2009). Job rotation is traditionally linked to an improvement in professional competence and a change in work attitude and has been used as a human resource strategy to invigorate an organization (Huang *et al.*, 2016). However, job rotation has recently been found to be a source of negative stress among organization members (Huang *et al.*, 2016; Lee & Yoo, 2017; Shin & Yu, 2017). The hospital organization is a representative organization that requires highly professional manpower and technology, and at least seven years are required for a nurse to acquire all of the professional knowledge required to perform jobs in a department and skillfully solve problems (Jang, 2009). Since nurses take a long time to provide complete professional and high-quality services to patients in the hospital, frequent job rotation leads to psychological discomfort and ultimately reduces the hospital's productivity (Ortega, 2001).

A nurse's job rotation stress is determined through the process of an appraisal of an individual's perceived stress. The primary appraisal involves evaluating the level of sensitivity and threat experienced in a situation. Accordingly, job-related stress can be divided into challenging stress or hindrance stress during primary appraisal (Cavanaugh, Boswell, Roehling, & Boudreau, 2000). If a nurse evaluates job rotation as a type of challenging stress, job rotation will lead to positive psychological effects, such as an improvement in the quality of nursing tasks, opportunities for occupational growth, and an increase in job satisfaction (Lee *et al.*, 2016). On the other hand, if a nurse perceives job rotation as a type of hindrance stress, he or she will experience psychological discomfort from various adaptation processes that include many unfamiliar tasks (Shin & Yu, 2017). Hence, in order to increase the psychological well-being of nurses in a hospital, there must be a process of verifying which type of job rotation nurses perceive as causing stress (Chang & Lee, 2005). The secondary appraisal involves a process of assessing what an individual can do when he or she is

in a stressful situation, and evaluating the type of coping resources that are at their disposal (Lazarus & Folkman, 1984). Moreover, an organization member's perceived social support can help by positively adapting to stressful situations as perceived by the member (Thoits, 1985), and has been reported to serve as a psychological resource for improving their psychological well-being in the organization (Seligman, 2007). Social support is a resource that provides emotional, informational, and substantive support to help overcome negative emotions and psychological burden. It adjusts the degree of an individual's stressful situation and helps with psychological adaptation and therefore has positive effects (Sohn, Kim, Lee, Park, & Roh, 2014). Furthermore, optimism is a psychological resource that adjusts stressful situations and may be described as efforts to see the situation in a positive light (Seligman, 2007). Organization members with an optimistic disposition take stressful situations lightly, have a positive attitude, and use appropriate stress-coping strategies, which ultimately has a positive effect on their psychological well-being (Scheier, Carver, & Bridges, 1994).

Coping strategies, which refer to the efforts made to control a stressful situation, play an important role in an individual's adjustment to various situations (Lazarus & Folkman, 1984). Since tasks in every ward require elevated professionalism with advances in medical technology, nurses who experience job rotation undergo a process of adjustment in their job and personal relationships over a relatively long period of time, which is a stress factor for nurses (Chang & Lee, 2005; Dagget, Molla, & Belachew, 2016; Lee & Yoo, 2017; Shin & Yu, 2017). However, if nurses who experience job rotation utilize appropriate coping strategies in stressful situations, they can efficiently manage these stressful situations and improve their psychological well-being in the organization (Sohn *et al.*, 2014). However, earlier studies related to psychological well-being in the Korean nursing field have only verified fragmentary correlations between job stress, emotional labor, optimism, and exhaustion.

Therefore, this study constructed a structural model that can predict psychological well-being based on influential factors such as job rotation stress, hindrance stress appraisal, self-efficacy, social support, optimism, and coping strategies in order to describe the psychological well-being of hospital nurses.

1.2 | Theoretical framework

To predict the psychological well-being of nurses, this study used the stress-coping and adjustment theory of Lazarus and Folkman (1984) to establish a theoretical framework considering stress factors, stress appraisal factors, coping factors, and adjustment factors. Stress-coping and adjustment theory has been reported to be a useful model in describing the relationship between adjustment and various job-related stresses experienced by an individual in an organization. Lazarus

and Folkman argued that stress that is experienced in an organization must be approached from an environmental perspective, rather than a stimulating or reactive perspective. They also explained that because the same stress may be perceived differently according to an individual's disposition, stress that results from situational demands, such as job rotation, will vary widely between individuals. Hence, a careful approach is required in order to resolve stress. Appraisals of stress are a part of an individual's appraisal and can be divided into primary and secondary appraisals. It can also be divided into challenging stress appraisal and hindrance stress appraisal (Cavanaugh *et al.*, 2000). The secondary appraisal of stress involves a process of assessing what an individual can do when he or she is in a stressful situation. It is not a trailing factor of the primary appraisal, but a factor that has a direct impact on coping methods. Based on this theory, this study selected job rotation stress as an exogenous variable and selected the primary appraisal of stress as hindrance stress appraisal and the secondary appraisal as based on self-efficacy, social support, and optimism, which are emphasized as psychological resources. Moreover, the stress-coping theory posits that it is more effective when a member of an organization uses various coping strategies in order to control a perceived stressful situation, rather than relying on just one type of coping strategy. Psychological well-being is described as the result of how an individual evaluates their perceived stress and their efforts in coping with the evaluated stress. Hence, a hypothesis was established to verify the direct and indirect effects of psychological well-being mediated by appraisals and coping strategies regarding job rotation stress.

The stress-coping and adjustment theory of Lazarus and Folkman (1984) proposes that there is a significant relationship between stress appraisal and coping strategies with respect to the process of adjusting to a stressful situation; however, the direct and indirect effects of stressful situations and the primary and secondary stress appraisals have not been verified. An earlier study has verified nurses' stress appraisal processes and use of coping strategies as important aspects of adaptation, and has proposed coping strategies that address stress and the stress appraisal process, as well as efforts on a personal and organizational level to improve the psychological well-being of nurses (Lee & Choi, 2013). In light of these points, this study established a hypothesis based on the direct effects of stress on psychological well-being, primary and secondary appraisals, and coping according to the stress-coping theory model (Figure 1).

2 | METHOD

2.1 | Research design

This study employed a covariance structural analysis to explain the psychological well-being of hospital nurses,

identify relevant influencing factors, build a predictive factorial model, and verify the proposed hypotheses regarding the model and its fitness.

2.2 | Research subjects

The research subjects were 220 nurses working in four hospitals with at least 300 beds located in Metropolitan City B and Province G who have had more than one experience of job rotation while working as a nurse. The basis for the subject criteria was as follows. According to the 2015 Hospital Administration Survey (Lee, 2015), general hospitals are classified according to the number of beds: fewer than 160 beds, between 160 to 299 beds, and 300 beds or more. General hospitals with 300 beds or more must have at least nine treatment departments with admission facilities. Since direct and indirect exposure to job rotation stress is greater there than in hospitals with fewer than 300 beds (Lee & Kim, 2012), the subjects of this study were selected based on whether they had at least one experience with job rotation while working as a nurse in a hospital with at least 300 beds. For the sample selection criteria, the minimum sample size as per the requirements of Structural Equation Modeling (SEM) was 200 subjects in order for the fitness measures to produce proper results for the model; hence, 220 subjects were selected in consideration of a 10.0% disqualification rate (Bae, 2017).

2.3 | Measurement

2.3.1 | Job rotation stress

Job rotation stress refers to stress perceived by nurses in relation to moving to a different department or task within the hospital (Huang *et al.*, 2016). This study used the Korean version of the nurse job rotation stress measurement tool developed by Huang *et al.* (2016) and adapted by Yang *et al.* (2016) to match the circumstances of Korean society. A total of eight questions were measured on a five-point scale, with three sub-factors (emotional reaction, daily life, communication), and an examination of the reliability of the tool by Yang *et al.* yielded a Cronbach's α of .75–.86. The confirmatory factor analysis (CFA) results were positive with $\chi^2/df = 1.86$, goodness of fit index (GFI) = .97, adjusted goodness of fit index (AGFI) = .92, normed fit index (NFI) = .96, comparative fit index (CFI) = .98, standardized root mean square residual (SRMR) = .03, root mean square error of approximation (RMSEA) = .06, and the factor load was distributed from .54 to .86. Cronbach's α for the reliability of the tool in this study was .62 – .81.

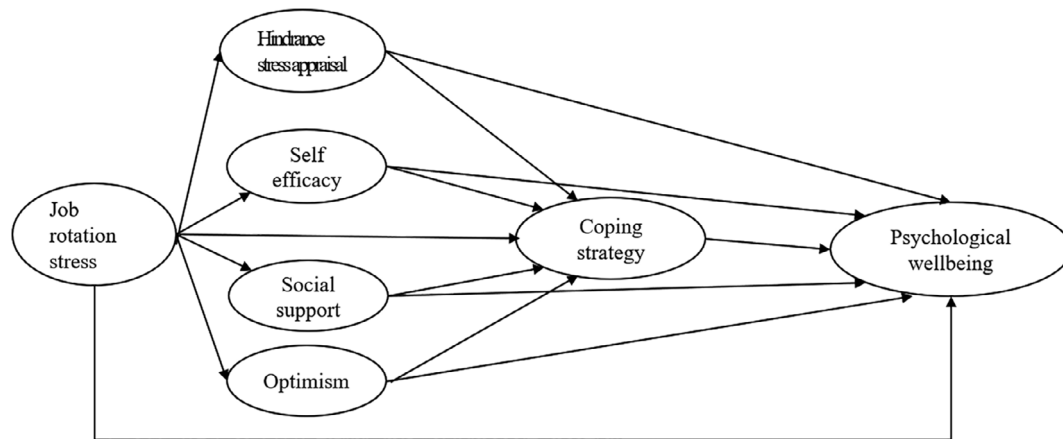


FIGURE 1 Conceptual model

2.3.2 | Hindrance stress appraisal

Hindrance stress appraisal refers to the process of appraising the degree of sensitivity and threat regarding a stressful situation as a hindrance (Cavanaugh *et al.*, 2000). The primary stress appraisal tool developed by Webster *et al.* (2011) and adapted and revised by Lee *et al.* (2017) to be used with nurses to assess the hindrance stress appraisal was used in this study. It comprises a total of 29 questions measured on a seven-point Likert scale. The tool's Cronbach's α for reliability was reported as .94 in a study by Lee *et al.* Excluding the questions with a factor load $<.50$ in the CFA results, 21 questions were used in the final analysis after verifying the CFA results again. The results were positive with $\chi^2/df = 1.20$, GFI = .94, AGFI = .90, NFI = .98, CFI = .99, SRMR = .05, RMSEA = .03, and the factor load was distributed from .61 to .85. Cronbach's α for the reliability of the tool in this study was .95.

2.3.3 | Self-efficacy

Self-efficacy refers to a positive belief or judgment regarding one's own ability to perform a task or be a part of an organization. It also signifies an individual's belief that they will successfully complete a certain task in a certain situation (Bandura, 1977). This study used the self-efficacy tool developed by Rigotti *et al.* (2008) and adapted and revised by Woo and Han (2018) for nurses. The test comprises six questions measured on a six-point Likert scale, and the tool's Cronbach's α was .93. Excluding the questions with a factor load $<.50$ in the CFA results, 21 questions were used in the final analysis after verifying the CFA results again. The results were positive with $\chi^2/df = 2.01$, GFI = .98, AGFI = .94, NFI = .98, CFI = .99, SRMR = .02, RMSEA = .07, and the factor load was distributed from .64 to .80. Cronbach's α for the reliability of the tool in this study was .86.

2.3.4 | Social support

Social support refers to all types of positive resources that can be obtained through social relationships, such as love, recognition, information, or materialistic aid from another person (Thoits, 1985). This study used the Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet *et al.* (1988), as revised and supplemented by Jang (2015). A total of 12 questions were measured on a seven-point scale, with four sub-factors (support from friends, support from family, support from superiors, and support from colleagues), and the reliability of the tool by Jang showed a Cronbach's α of .90–.92. The CFA results were positive with $\chi^2/df = 1.71$, GFI = .95, AGFI = .91, NFI = .97, CFI = .99, SRMR = .04, RMSEA = .05, and the factor load was distributed from .77 to .94. Cronbach's α for the reliability of the tool in this study was .93–.94.

2.3.5 | Optimism

Optimism is the general positive expectation of the future (Sohn *et al.*, 2014). This study used the Life Orientation Test-Revised (LOT-R) developed by Scheier *et al.* (1994) as adapted and revised by Shin *et al.* (2005). A total of seven questions are measured on a five-point scale, with two sub-factors (positive expectations, ambiguous questions), and this study used three questions regarding positive expectations. The reliability study of the tool by Shin *et al.* found a Cronbach's α of .65. The CFA results were positive with $\chi^2/df = 1.20$, GFI = .99, AGFI = .98, NFI = .99, CFI = .99, SRMR = .03, RMSEA = .03, and the factor load was distributed from .70 to .81. Cronbach's α for the reliability of the tool in this study was .82.

2.3.6 | Coping strategy

A coping strategy is a cognitive or behavioral effort that changes in order to handle external or internal demands (danger, threat, challenge) after resources are requested or

after assessing that the demand is excessive when an individual is faced with a critical situation (Lazarus & Folkman, 1984). This study used the way of coping checklist developed by Lazarus and Folkman (1984) that was adapted and verified by Lee and Kim (1988), and further verified through a preliminary survey of nurses by Choi (2014). A total of 24 questions were measured on a four-point scale with two sub-factors (active coping, passive coping), and the reliability of the tool in the study by Choi showed a Cronbach's α of .89 for active coping and .70 for passive coping. After excluding the questions with a factor load $<.50$ in the CFA results, eight questions were used in the final analysis after verifying the CFA results again. The results were positive with $\chi^2/df = 2.30$, GFI = .95, AGFI = .90, NFI = .91, CFI = .94, SRMR = .01, RMSEA = .08, and the factor load was distributed from .54 to .72. Cronbach's α for the reliability of the tool was in this study .80.

2.3.7 | Psychological well-being

Psychological well-being refers to a broad scope of well-being that includes autonomy, control over one's environment, purpose of life, self-acceptance, positive personal relationships, and personal growth in a multidimensional framework regarding an individual's positive abilities (Ryff, 1989). This study used the Psychological Well-Being Scale (PWBS) developed by Ryff (1989) as revised and translated by Kim *et al.* (2001). A total of 46 questions for six sub-factors were measured on a five-point scale, and the reliability of the tool in the study by Kim, Kim, and Cha (2001) showed a Cronbach's α of .66–.76. After excluding the questions with a factor load $<.50$ in the CFA results, 23 questions were used in the final analysis after verifying the CFA results again. The results were positive with $\chi^2/df = 1.10$, GFI = .92, AGFI = 0.90, NFI = .91, CFI = .99, SRMR = .02, RMSEA = .02, and the factor load was distributed from .67 to .84. Cronbach's α for the reliability of the tool in this study was .68–.90.

3 | DATA COLLECTION AND ETHICS CONSIDERATIONS

Data for this study were collected from December 28, 2017, to February 2, 2018, after receiving approval from the Institutional Review Board for Research Subject Protection from K University located in Metropolitan City B (KU IRB 2017–0052-01). The researcher of this study visited the nursing department of the target hospital to explain the purpose of the study and consent was received according to the hospital's research approval procedures so that nurses who fit the purpose of the study might be selected. The questionnaires were distributed by the chief nurse according to the nursing department's policies only to subjects who expressed

consent on the research consent form. The data from four hospitals were collected in a same method, and 217 out of a total of 220 questionnaires were used in the analysis

4 | DATA ANALYSIS

The collected data were analyzed as follows using SPSS 21.0 and AMOS 21.0. The subjects' general characteristics and research variables were analyzed with descriptive statistics. A CFA was performed for all tools, and factor loading, concept reliability, and standard variance extraction were used to test the convergent validity to verify the degree of consistency across multiple scales measuring the same concept. Discriminant validity verifies the extent to which the tools measuring different concepts measure them in a discriminating manner. This was measured using correlation coefficients and $\sqrt{\text{AVE}}$ values in this study. The reliability of the measurement tool was confirmed through Cronbach's α . The normality of the sample was verified through the average, standard deviation, skewness and kurtosis, and the multicollinearity between the independent variables were checked through the tolerance and variance inflation factor. Pearson's correlation coefficient was used to verify the correlation coefficient. The fitness of the structural model was tested through the values of χ^2 , $\chi^2/df \leq 3.00$, AGFI, GFI, CFI, SRMR, RMSEA, and NFI. To verify the significance of the model's indirect effect and total effect, this study used the bootstrapping method. For single observation variables in the structural equation, the factor load was set to 1 and the variance of the measurement error to 0 to build the model (Yu, 2012).

5 | RESULTS

5.1 | General characteristics of subjects

The general characteristics of the subjects are shown in Table 1.

5.2 | Descriptive statistics, convergence, and discriminant validity of the measured variables

Table 2 shows the descriptive statistics of the measured variables used in the hypothetical model. For all measured variables in this study, skewness did not exceed an absolute value of 3 and kurtosis did not exceed 10 in the univariate normality verification, which satisfies the conditions for assuming a normal distribution (Bae, 2017). However, in the multivariate normality test, the multivariate kurtosis was 16.32 and the threshold was 5.33, which did not satisfy multivariate normality at a significance level of 0.05. Hence, a bootstrapping method was used in this study's structural equation model and in the significance test. Bootstrapping estimates parameters after extracting samples through random sampling with replacement

TABLE 1 General characteristics

Variables	Categories	N (%)	M ± SD
Age, years	<30	59 (27.2)	33.81 ± 6.63
	30~34	69 (31.8)	
	35~39	46 (21.2)	
	≥40	43 (19.8)	
Marital status	Married	115 (53)	
	Not married	102 (47)	
Religion	Yes	112 (50.6)	
	No	105 (48.4)	
Level of education	University	136 (62.7)	
	College	41 (18.9)	
	Graduate school	40 (18.4)	
Position	General nurse	173 (79.7)	
	More than Charge nurse	44 (20.3)	
Current working department	Outpatient unit, etc.	77 (35.5)	
	Special unit (OR, ER, DR, ICU)	60 (27.6)	
	Surgery ward	42 (19.4)	
	Internal medicine ward	38 (17.5)	
Total clinical career, years	<5	39 (18.0)	11.83 ± 6.76
	5~9	65 (29.9)	
	10~14	62 (28.6)	
	≥15	51 (23.5)	
Current department career, years	<1	60 (27.6)	3.16 ± 3.54
	1~2	70 (32.3)	
	3~4	40 (18.4)	
	≥5	47 (21.7)	
Job rotation experience	1 time	90 (41.5)	
	2 times	52 (24.0)	
	3 times and more	75 (34.5)	

Abbreviations: DR, delivery-room; ER, emergency room; ICU, intensive care unit; M, mean; OR, operating room; SD, standard deviation.

from the original data to generate parameters, and is a method that can be used to analyze non-multivariate normality data (Bae, 2017).

5.3 | Structural model verification for the psychological well-being of hospital nurses

5.3.1 | Model fit verification

In the model evaluation, the model is assumed to fit if the χ^2/df is below 3, the GFI, AGFI, NFI, and CFI are .90 or higher, SRMR is .50 or below, and RMSEA is .08 or below (Yu, 2012). After evaluating the fitness of the research model, the results showed that $\chi^2 = 295.23$, $df = 79$, $\chi^2/$

$df = 3.74$, $GFI = .85$, $AGFI = .77$, $NFI = .79$, $CFI = .83$, $SRMR = .04$, and $RMSEA = .11$, which showed that parts of the model did not meet the standards of fitness. Therefore, this study used the modification indices (MI) (Byrne, 2012) to connect the covariance between the errors with the highest MI values that were also variables within the same potential factors. The results of the goodness of fit index of the revised measurement model showed that $\chi^2 = 152.14$, $df = 72$, $\chi^2/df = 2.11$, $GFI = .97$, $AGFI = .91$, $NFI = .95$, $CFI = .98$, $SRMR = .02$, $RMSEA = .01$, and the fitness of the prediction model met the recommended levels.

5.3.2 | Verification of the revised model and effect analysis

There were 11 paths that were statistically significant out of the 15 paths of the revised model, and Figure 2 shows the hypothetical model path. Job rotation stress of hospital nurses had a direct effect on hindrance stress appraisal ($\beta = .44$, $\rho < .001$), self-efficacy ($\beta = -.33$, $\rho < .001$), social support ($\beta = -.17$, $\rho < .001$), and optimism ($\beta = -.31$, $\rho < .001$). Self-efficacy ($\beta = .40$, $\rho \leq .001$), social support ($\beta = .20$, $\rho = .005$), and optimism ($\beta = .14$, $\rho = .035$) had a direct effect on coping strategies. Job rotation stress had an indirect effect ($\beta = .22$, $\rho < .001$) on coping strategies mediated by self-efficacy, social support, and optimism. The self-efficacy ($\beta = .38$, $\rho < .001$), social support ($\beta = .41$, $\rho < .001$), optimism ($\beta = .20$, $\rho = .003$), and coping strategies ($\beta = .44$, $\rho < .001$) had a direct effect on their psychological well-being. Job rotation stress ($\beta = -.24$, $\rho < .001$) had an indirect effect on psychological well-being mediated by self-efficacy, social support, optimism and coping strategies. Self-efficacy ($\beta = .11$, $\rho < .001$), social support ($\beta = .12$, $\rho < .001$), and optimism ($\beta = .09$, $\rho = .003$) had an indirect effect on psychological well-being mediated by coping strategies. These direct and indirect factors explained 63.0% of the variance in the psychological well-being of hospital nurses (Table 3).

6 | DISCUSSION

The following is a discussion of the implications of the research results.

First, the job rotation stress of hospital nurses was confirmed to have a statistically significant effect on hindrance stress appraisal, self-efficacy, social support, and optimism. Job rotation causes various difficulties due to the challenges of the tasks in a new department, issues with adapting to new personal relationships, and changes in daily life (Huang *et al.*, 2016). It not only accompanies a lack of a sense of belonging and the burden of having to learn new tasks (Ortega, 2001), but is also believed to be a hindrance stress

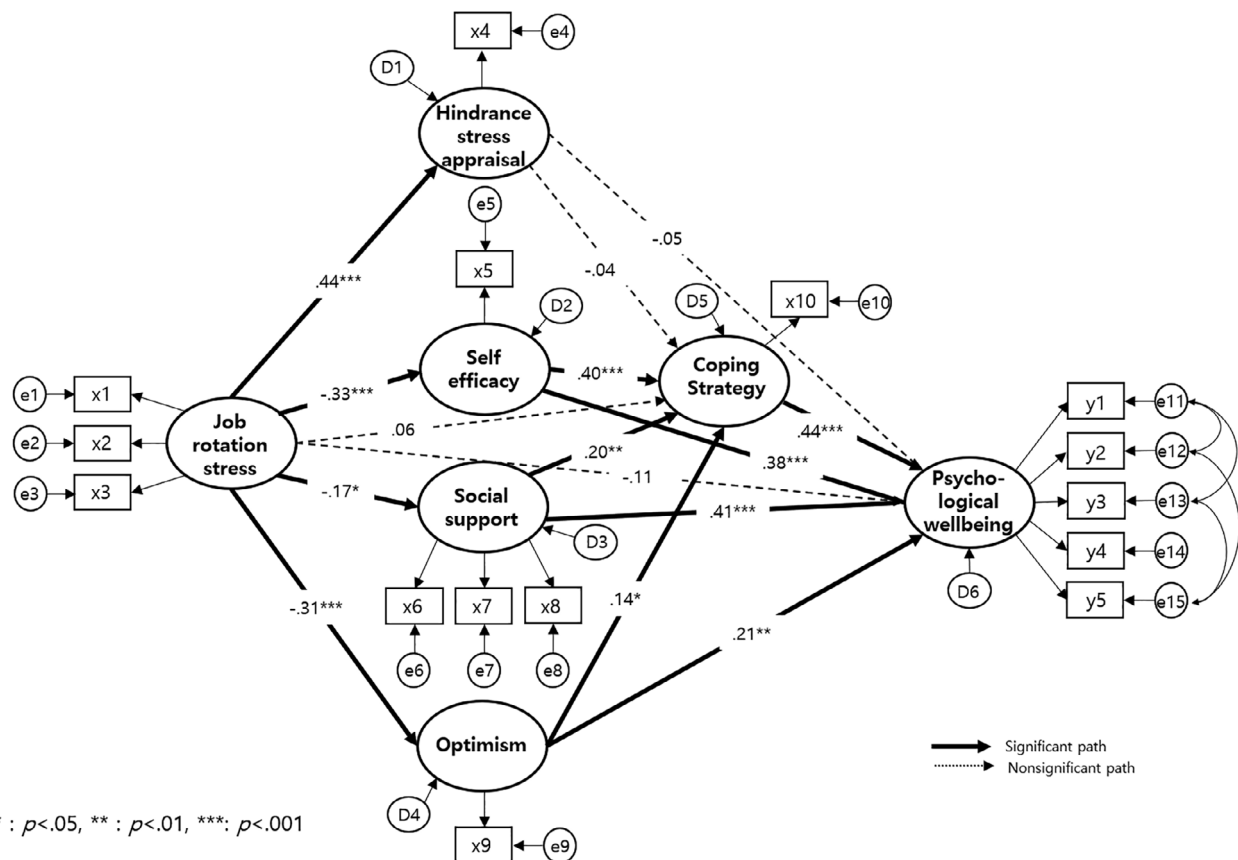
TABLE 2 Correlations and discriminant validity of the model

Variables		M±SD	X1	X2	X3	X4	X5	X6	X7
X1	Job rotation stress	3.93 ± 0.94	.81						
X2	Hindrance stress appraisal	5.11 ± 1.05	.36**	.88					
X3	Self-efficacy	4.21 ± 0.60	-.27**	-.14*	.83				
X4	Social support	5.62 ± 0.76	-.15**	-.14*	.45**	.78			
X5	Optimism	2.98 ± 0.38	-.21**	-.22**	.46**	.38**	.87		
X6	Coping strategy	2.94 ± 0.35	.12*	-.12*	.53**	.38**	.38**	.85	
X7	Psychological well-being	3.23 ± 0.36	-.23**	-.13*	.61**	.55**	.49**	.44**	.75
Cronbach' α			.84	.95	.86	.93	.82	.80	.91
CCR			.85	.99	.93	.82	.90	.96	.93
AVE			.66	.77	.69	.61	.75	.73	.57

Note: The bold section: discriminant validity; The nonbold section: correlation.

Abbreviations: AVE, average variance extracted; CCR, composite construct reliability; M, mean; SD, standard deviation.

* $P < .05$; ** $P < .01$.



x1=Emotional; x2=Communication; x3=Daily life; x4=Hindrance stress appraisal; x5=Self efficacy; x6=Colleagues and Seniors; x7=Family; x8=Friends; x9=Optimism; x10=Coping strategy; y1=Self-acceptance; y2=Environmental Mastery; y3=Personal Growth; y4=Positive Relations with Others; y5=Purpose in Life

FIGURE 2 Path diagram for the modified model

for hospital nurses because most job rotations are implemented unilaterally as a means of coordinating administrative tasks by the hospital regardless of the nurse's wishes (Shin & Yu, 2017). The results of the study are similar to those of Kang (2013), who analyzed job-related stress and self-efficacy,

including job rotation of hospital nurses, and found that self-efficacy decreases with greater job-related stress. The results also confirmed that job rotation may serve as an influential factor where an individual will see that their professional knowledge and techniques are less useful (Lee & Yoo, 2017).

TABLE 3 Effects of predictive variables in the modified model

Endogenous variables	Exogenous variables	β	CR	P	SMC	Direct effects (P)	Indirect effects (P)	Total effects (P)
Psychological well-being	Job rotation stress	-.11	-1.28	.200	.63	-.11 (.200)	-.24(<.001)	-.35 (.010)
	Hindrance stress appraisal	-.05	-.75	.452		-.05 (.452)	-.03 (.377)	-.08 (.564)
	Self-efficacy	.38	4.67	<.001		.38 (<.001)	.11(<.001)	.49 (<.001)
	Social support	.41	4.84	<.001		.41 (<.001)	.12(<.001)	.53 (<.001)
	Optimism	.21	3.02	.003		.20 (.003)	.09 (.003)	.29 (.010)
	Coping strategy	.44	7.36	<.001		.44 (<.001)	—	.44 (<.001)
Coping strategy	Job rotation stress	.06	.76	.448	.30	.06 (.448)	.22(<.001)	.28 (.028)
	Hindrance stress appraisal	-.04	-.58	.560		-.04 (.527)	—	-.04 (.527)
	Self-efficacy	.40	5.82	<.001		.40 (<.001)	—	.40 (<.001)
	Social support	.20	2.84	.005		.20 (.005)	—	.20 (.005)
	Optimism	.14	2.10	.035		.14 (.035)	—	.14 (.035)
Hindrance stress appraisal	Job rotation stress	.44	5.56	<.001	.19	.44 (<.001)	—	.44 (<.001)
Self-efficacy	Job rotation stress	-.33	-4.20	<.001	.11	-.33 (<.001)	—	-.33 (<.001)
Social support	Job rotation stress	-.17	-2.01	.044	.03	-.17 (.044)	—	-.17 (.044)
Optimism	Job rotation stress	-.31	-4.01	<.001	.10	-.31 (<.001)	—	-.31 (<.001)

Abbreviations: β , standardized regression weights; CR, critical ratio; SMC, squared multiple correlations.

Moreover, job rotation stress has been verified to have a negative effect on social support; nurses who transfer departments through job rotation have a hard time receiving support from their colleagues or superiors in the new department (Lee & Yoo, 2017). Among psychological coping resources, optimism is also negatively impacted by job rotation stress, which supports the results of the study by Yim and Kim (2015) that also targeted nurses. Job rotation stress is caused by administrative procedures in an organization, and its members may perceive the organization as unfair, which serves to reduce an individual's positive attitudes, including optimism. Therefore, if effective management and coping with job rotation stress is seen as an important aspect of an individual's stress appraisal or management of psychological coping resources, job rotation must be implemented in consideration of both the wishes of the nurses themselves and their competence or expertise. Furthermore, it should be implemented through fair methods and clear procedures (Shin & Yu, 2017) that ensure it is not used as a means of punishment or to exert pressure to resign. There must also be a support system, such as random rotation prevention after maternity leave or leave for infant care, including a preliminary survey of preferences or a guarantee of a standby period for job rotation so that nurses can adjust to the tasks demanded by their new department through training and various forms of support for adjustment to a new department.

Second, while job rotation stress does not have a general direct effect, it has been confirmed as a factor having an indirect effect through psychological coping resources, such as self-efficacy, social support, and optimism. Self-efficacy, social support, and optimism were verified as factors with a

generally direct effect. This supports the theory of Lazarus and Folkman (1984), which states that the use of these psychological coping resources will impact the use of efficient stress-coping strategies and help control stressful situations, such as job rotation. Organization members with high self-efficacy were found to actively use various coping strategies in stressful situations and thus have the ability to overcome stress (Sohn *et al.*, 2014). In order for hospital nurses to efficiently use coping strategies in stressful situations, a work environment that improves self-efficacy and various training programs must be implemented. If diverse training methods are used during the training course for nursing students, this is believed to improve their self-efficacy and help them in using coping strategies more effectively. There are differences in perceived social support according to the individual depending on the stressful situation (Lazarus & Folkman, 1984), and various coping strategies can be used when there is a greater degree of perceived social support. Higher optimism is linked to a greater use of coping strategies, and thus improving self-efficacy, perceived social support, and optimism among hospital nurses will help them use diverse coping strategies and more efficiently manage stress. Therefore, based on earlier studies reporting that psychological coping resources have a significant effect on coping strategies (Lazarus & Folkman, 1984; Sohn *et al.*, 2014), it is necessary to conduct research targeting hospital nurses on psychological coping resources and stress. Future research on various psychological resources and ways to develop and use psychological resources in order to manage job rotation

stress, is expected to help hospital nurses more efficiently use coping strategies.

Third, while job rotation stress does not have a direct effect on psychological well-being, it does have an indirect effect through self-efficacy, social support, optimism, and coping strategies. This re-confirms the theory by Lazarus and Folkman (1984) which states that the use of psychological coping resources has an effect until an individual adjusts to a stressful situation, such as job rotation. To elaborate, this supports the results of studies (Jeun & Kim, 2018; Kim & Yoo, 2010) reporting that an individual who develops positive psychological resources like self-efficacy will be more self-confident and capable of self-development and thereby achieve psychological well-being, which supports the importance of a nurse's self-efficacy. Social support of all types is a positive factor that is acquired through social relationships and is also an important resource that helps an individual adjust to the organization (Thoits, 1985). These results support the findings that since hospital nurses do not work alone, the degree of perceived social support from meaningful people, including their colleagues, is an important variable with a positive effect on their psychological well-being (Jeun & Kim, 2018). These results are also consistent with studies reporting that nurses with an optimistic disposition assess their lives more positively than do nurses who are less optimistic, take in stressful situations more positively, and expect to resolve the situation themselves (Li & Lambert, 2008), and another study reports that optimistic nurses are able to overcome negative emotions more quickly and work with a positive attitude, which positively impacts their psychological well-being (Seligman, 2007). This re-confirms the importance of optimism. Furthermore, coping strategies are a factor encouraging individuals to change problematic behaviors, improve their environmental conditions, and interact with stress factors. Since it is an attempt to control a stressed-related emotional state (Lazarus & Folkman, 1984), it affects the psychological well-being of nurses. Although nurses encounter a variety of highly stressful situations compared to other occupations, if they can efficiently overcome their stress, this will have a positive effect on restoring their health and help them offer higher-quality nursing services (Jun *et al.*, 2015). Therefore, coping strategies are important resources for the psychological well-being of nurses.

Nevertheless, coping strategy was used as an important resource in seeking psychological well-being of nurses, but job rotation stress and coping strategies did not show any significant relationship in this study. In the analysis of stress-coping patterns of nurses, there are cases where adaptation is achieved by using various coping strategies (Kim, Ko, & Shin, 2016) as explained in this model. In the case of job rotation stress, most of the time, regardless of the will of the individual, they must comply with the instructions of the organization (Huang *et al.*, 2016). Job rotation stress shows

a significant direct effect on hindrance stress appraisal. While no significant direct effects of hindrance stress appraisal on either coping strategies or psychological well-being was found in this study, it could be assumed that nurses dealt with job rotation stress through self-efficacy, social support, and optimism to coping strategies and consequently to psychological well-being.

Therefore, it is helpful to utilize various psychological resources such as self-efficacy and social support as shown in this study in order to reach the stage of adaptation to stress using appropriate coping strategies when various stresses are evaluated as disturbing. There is a need to find other resources through future study.

Therefore, in order to manage job rotation stress, future studies should be conducted on psychological resources and ways to develop them; in particular, those that have confirmed indirect effects in order to manage job rotation stress, as this is expected to help hospital nurses more efficiently use coping strategies.

7 | CONCLUSION

This study built and verified a structural model that predicts the psychological well-being of hospital nurses. The results showed that self-efficacy, social support, optimism, and coping strategies have a direct effect on the psychological well-being of hospital nurses, and job rotation stress and hindrance stress appraisal are factors with an indirect effect. The psychological well-being of nurses is not only a factor that helps nurses provide high-quality services, but also improves the hospital's service level and patient satisfaction. Therefore, in order to devise strategies to improve psychological well-being, it is necessary to actively establish policies at the administrative level in hospitals to reduce job rotation stress, which has recently been emphasized among the factors that affect psychological well-being.

8 | LIMITATIONS

The limitations of this study are as follows. First, this study identified factors that affect the psychological well-being of nurses, focusing on job rotation stress, although it failed to include various personal and environmental stress factors that could affect the psychological well-being of nurses. Second, this study was performed with a focus on nurses at advanced general hospitals, and does not include nurses in primary or secondary hospitals which have different working environments. Future studies should consider the various factors which affect the psychological well-being of nurses, and supplement the limitation of this study. It is necessary to develop and implement a program that can enhance the psychological well-being of nurses based on the results of this study.

DISCLOSURE

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

J. K. contributed to the conception and design of this study
J. H. performed the statistical analysis and drafted the manuscript.

ORCID

Jung Min Kim  <https://orcid.org/0000-0003-1815-4617>

Jeong-Won Han  <https://orcid.org/0000-0002-4893-8327>

REFERENCES

- Back, J. H., Kim, M. H., & Kim, S. M. (2016). Perceived emotional labor of clinical nurse from the persons concerned. *Korean Journal of Occupational Health Nursing*, 25(3), 148–155 (in Korean).
- Bae, B. R. (2017). *Structural equation modeling with Amos 24*. Seoul, South Korea: Chenngram Books (in Korean).
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Byrne, B. M. (2012). *A primer of LISREL: Basic applications and programming for confirmatory factor analytic models*. New York, NY: Springer Science & Business Media.
- Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of Applied Psychology*, 85(1), 65–74.
- Chang, K. H., & Lee, E. M. (2005). A study on the attitude on the transfer of duty post and job satisfaction of nurses. *Journal of East-West Nursing Research*, 11(1), 12–24 (in Korean).
- Chang, S. O., Cho, K. H., Kim, I. A., Lee, S. J., & Seomun, G. (2006). The relation between self-leadership and outcome of nursing practice. *Journal of Korean Academy of Nursing Administration*, 12(1), 151–158 (in Korean).
- Choi, E. H. (2014). *Structure model which influence the turnover intention and job burnout by job stress, work-family conflict and coping strategies for the nurse*. (Master's thesis). Kyunghee University (in Korean).
- Dagget, T., Molla, A., & Belachew, T. (2016). Job related stress among nurses working in Jimma Zone public hospitals, South West Ethiopia: a cross sectional study. *BMC Nursing*, 15, 39.
- Ho, W. H., Chang, C. S., Shih, Y. L., & Liang, R. D. (2009). Effects of job rotation and role stress among nurses on job satisfaction and organizational commitment. *BMC Health Services Research*, 9(1), 8.
- Huang, S., Lin, Y. H., Kao, C. C., Yang, H. Y., Anne, Y. L., & Wang, C. H. (2016). Nursing Job Rotation Stress Scale development and psychometric evaluation. *Japan Journal of Nursing Science*, 13(1), 114–122.
- Jang, K. S. (2009). *Study on establishment of clinical career development model of nurses*. (Doctoral dissertation). Yonsei University (in Korean).
- Jang, M. J. (2015). *Predictive model for burnout in emergency room nurses who experienced violence* (Doctoral dissertation). Dong-A University (in Korean).
- Jeun, Y. J., & Kim, J. S. (2018). The effect of hospital administrative staff's positive psychological capital on psychological well-being. *Journal of the Korea Society of Computer and Information*, 23(2), 93–98 (in Korean).
- Jun, W. H., Lee, E. S., & Lee, K. L. (2015). Relationships among gratitude, depression, and psychological well-being in clinical nurses. *Journal of Korean Academy of Psychiatric and Mental Health Nursing*, 24(2), 136–144 (in Korean).
- Kang, N. H. (2013). *A mediator effect of self-efficacy in the association between job stress and burnout among general hospital nurses*. (master's thesis). Korea University (in Korean).
- Kang, S. M., & Bae, S. H. (2015). The mediating effect of emotional intelligence on the relationship between emotional labor and psychological well-being of clinical nurses. *Journal of Muscle and Joint Health*, 22(3), 185–194 (in Korean).
- Kim, J. W., Ko, S. J., & Shin, S. H. (2016). The effects of verbal violence experience, social support, and coping patterns on job stress among operating room nurses. *Journal of Korean Clinical Nursing Research*, 22(1), 38–45 (in Korean).
- Kim, K. S., & Yoo, S. M. (2010). The influence of self-efficacy, psychological well-being, and stress management on subjective well-being. *Journal of Brain Education*, 6(1), 19–53 (in Korean).
- Kim, M. S., Kim, H. W., & Cha, K. H. (2001). Analyses on the construct of psychological well-being (PWB) of Korean male and female adults. *Korean Journal of Social and Personality Psychology*, 15(2), 19–39 (in Korean).
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping* (pp. 1–456). New York, NY: Springer.
- Lee, B. S., Kang, S. R., Kim, M. S., Ann, H. K., & Lee, E. J. (2016). *Nursing management*. Seoul, South Korea: Jeongdam Media. (in Korean).
- Lee, E. J., & Yoo, E. K. (2017). The experience of unwanted department relocation of the nurse. *Journal of Wellness*, 12(2), 37–48 (in Korean).
- Lee, E. Y., & Kim, N. H. (2012). Relationship among nurses attitude on job rotation, job stress and organizational commitment. *Korean Journal of Occupational Health Nursing*, 21(2), 154–163 (in Korean).
- Lee, H. N., Han, J. W., & Kim, J. M. (2017). Impact of job rotation stress in nurses on psychological well-being: focusing on mediating effect of challenge assessment and hindrance assessment. *Journal of the Korea Academia-Industrial Cooperation Society*, 18(10), 373–381 (in Korean).
- Lee, J. H., & Kim, J. H. (1988). Relations of perceived stress, cognitive set, and coping behaviors to depression: a focus on freshmen's stress experiences. *Korean Journal of Counseling and Psychotherapy*, 1(1), 25–45 (in Korean).
- Lee, M. J., & Choi, J. A. (2013). The effect of optimism on psychological well-being: stress coping strategies as a mediating variable. *Korea Journal of Counselling*, 14(6), 3739–3751 (in Korean).
- Lee, Y. C. (2015). *Statistics for hospital management*. Seoul, South Korea: South Korea Health Industry Development Institute (KOR). Retrieved from <https://www.khidi.or.kr/board/view?linkId=213857&menuId=MENU00085>
- Li, J., & Lambert, V. A. (2008). Workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses. *Nursing in Critical Care*, 13(1), 12–24.

- Ortega, J. (2001). Job rotation as a learning mechanism. *Management Science*, 47(10), 1361–1370.
- Rigotti, T., Schyns, B., & Mohr, G. (2008). A short version of the occupational self-efficacy scale: Structural and construct validity across five countries. *Journal of Career Assessment*, 16(2), 238–255.
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069–1081.
- Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063–1078.
- Seligman, M. E. (2007). *The optimistic child: A proven program to safeguard children against depression and build lifelong resilience*. New York, NY: Houghton Mifflin Harcourt.
- Shin, H., Lyu, J., & Lee, M. (2005). Testing the one-factor and two-factor models of optimism and pessimism in Korean adolescents. *Korean Journal of School Psychology*, 2(1), 79–97 (in Korean).
- Shin, S., & Yu, M. (2017). A model for predicting career satisfaction of nurses experiencing rotation. *Journal of Korean Academy of Nursing*, 47(4), 551–561 (in Korean).
- Sohn, S. K., Kim, M. S., Lee, Y. S., Park, H. K., & Roh, M. Y. (2014). The mediating effect of social support and stress on optimism and psychological well-being in clinical nurses. *Journal of East-West Nursing Research*, 20(1), 63–71 (in Korean).
- Thoits, P. A. (1985). Social support and psychological well-being: Theoretical possibilities. In *Social support: Theory, research and applications*. Netherlands: Springer.
- Webster, J. R., Beehr, T. A., & Love, K. (2011). Extending the challenge-hindrance model of occupational stress: The role of appraisal. *Journal of Vocational Behavior*, 79(2), 505–516.
- Woo, H. Y., & Han, J. W. (2018). Effects of nurse-perceived authentic leadership on patient safety nursing: Focused on the mediating effects of RN-MD collaboration, occupational coping self-efficacy, and burnout. *International Information Institute (Tokyo). Information*, 21(5), 1645–1656.
- Yang, B. E., Lee, B. N., & Han, J. W. (2016). Validity and reliability of a Korean version of nurse job rotation stress. *Journal of Korean Clinical Nursing Research*, 22(3), 352–358 (in Korean).
- Yim, H. Y., & Kim, J. H. (2015). *Mediating effect of positive psychological capital on the relationship between occupational stress and turnover intention among Korean nurses*. 10th International Nursing Conference, Korea.
- Yu, J. P. (2012). *The concept and understanding of structural equation modeling*. Seoul, South Korea: Hannare Publishing Co. (in Korean).
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment*, 52(1), 30–41.

How to cite this article: Kim JM, Han J-W. A predictive model on the hospital nurses' psychological well-being. *Jpn J Nurs Sci*. 2020;17:e12304. <https://doi.org/10.1111/jjns.12304>